

## REMARKS

Claim Status

Claims 1-18, 20-30, 37, 38 and 41-50 are pending in the present application.

Claims 19, 31-36, 39 and 40 have been cancelled without prejudice to prosecuting these claims in a continuing application, and claims 9-11, 13, 17, 20, 37, 38 and 41-45 have been amended in a non-prejudicial manner. For example, claims 9-11 have been amended in an editorial manner and not to overcome the prior art or to correct formal defects. And claims 37, 41 and 45 have been amended in independent form, and not in response to the prior art or any formal defect. Claims 42, 43 and 44 have been amended to better conform to the amendments of their base claim 41.

Claims 46-50 are newly presented herein. Applicants submit that these new claims are clearly supported by the application as filed. Thus, no new matter has been added.

Claims 1-18, 20-30, 37, 38 and 41-45 stand rejected as being unpatentable over Moskowitz (U.S. Patent No. 5,889,868) in view of Mauney (U.S. Patent No. 5,214,757).

Applicants respectfully traverse these rejections.

Interview Summary

Applicants express appreciation for the courtesies extended by Examiner Blackman to the undersigned, Steve Stewart, during a personal interview conducted on March 10, 2003. The resulting Interview Summary Form (PTO-413) is herein incorporated by reference. Claims 9-19 and 40-45 were discussed during the interview in view of Moskowitz and Mauney.

Claim 9 in view of Moskowitz and Mauney

The Office suggests that Moskowitz teaches steganographically encoding data in the form of a digital watermark component in each of a plurality of image patches, the encoded data including a location indicator. (See the Office Action at page 5, line 2 of paragraph 12 – page 6, line 2, citing Moskowitz's abstract, lines 1-8; Col. 2, lines 25-34, Col. 4, lines 18-47, Col. 5, line 59 – Col. 6, line 8; and Col. 7, line 29 – Col. 8, line 2.). Applicants respectfully disagree.

While these passages may discuss steganographic encoding, they are not understood to teach at least that the encoded data includes a location indicator.

For example, the Col. 5 passage discusses relating watermarking information (e.g., title, copyright holder, pricing) with pseudo-random keys. The pseudo-random keys map the watermark information to an insertion location within a content signal. (See Moskowitz at Col. 5, lines 59-66). This passage is therefore not understood to teach or suggest that the steganographically-encoded data includes a location indicator.

The Office correctly ascertains that Moskowitz is deficient in teaching the claim 9 features of: generating a geo-spatial map and piecing together the plurality of image patches based at least in part on the location indicator (see the Office Action at page 6, lines 2-4). Mauney is cited to cure Moskowitz's deficiencies.

Applicants must object to the proposed combination of Mauney with Moskowitz, and applicants expressly reserve the right to further explore the impropriety of such a combination during appeal, if needed. Nevertheless, even if combined as suggested by the Office, Mauney does not remedy Moskowitz's deficiencies.

For example, the cited passages of Mauney (Fig. 1; abstract, lines 1-11; Col. 1, lines 8-16; and Col. 3, lines 50-58) are not understood to teach or suggest at least piecing

together the plurality of image patches based at least in part on the location indicator. Instead, Mauney would install an interactive mapping system (e.g., GPS) into a vehicle, and then drive the vehicle over a particular path to be mapped (see Col. 3, lines 28-30). The collected GPS information is used to update a GIS database (see Col. 1, 11-16), and perhaps later to help build a GIS layer. But Mauney is not understood to take a plurality of steganographically embedded image patches, and piece the image patches together based at least in part on the location indicator.

Claim 9 should be allowed.

(It should be appreciated that while specific claim features were discussed in view of Moskowitz and Mauney, the allowability of claim 9 does not hinge on isolated elements thereof. Rather, claim 9 is believed patentable because, when viewed as a whole, it defines a combination that is neither anticipated by, nor obvious over, the prior art. This position applies to each of the pending claims as well. But for sake of brevity, this position will not be repeated hereafter.).

#### Claims 10-14

Claims 10-14 recite additional patentable combinations. Each of these claims is believed patentable in its own right, in addition to being variously dependent upon claim 9.

For example, claim 10 recites that the location indicator identifies the geo-coordinates of its respective image patch, with each of the plurality of image patches including a unique location identifier representing unique geo-coordinates.

And in claim 11, we recite that at least one of the location indicators identifies the geo-coordinates for at least one corner of its respective patch. The cited Mauney passage at Col. 3, lines 50-58 is understood to teach annotating an existing map in a GIS database according to a current travel path, not defining location indicators in terms of image patch

corner geo-coordinates. The remaining cited Mauney passages are also not understood to teach such a combination.

Claim 13 recites that the location indicator identifies the respective patch location within the geo-spatial map relative to at least one adjacent patch. The Col. 3, lines 50-58 does not identify an image patch location within the geo-spatial map relative to at least one adjacent image patch, but would rather display a path traveled.

The other claims recite additional patentable combinations.

Favorable consideration is respectfully requested.

**Claim 15 in view of Moskowitz and Mauney**

Mauney is cited for modifying the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data (see Office Action at page 7, lines 7-9 of paragraph 18). Mauney, however, is not understood to handle embedded data, let alone embedded imagery characteristics. Here lies one of the flaws of the proposed combination of Mauney with Moskowitz.

Moreover, Mauney is not understood to modify the imagery data based on the embedded imagery characteristics so as to standardize at least some of the imagery data. (In this regard, Mauney is understood to collect GPS information and use the collected GPS information to annotate or update a GIS database, to be perhaps later used for a GIS layer. Imagery data is not being modified based on embedded imagery characteristics.).

Claim 15 should be allowed.

**Claims 16-19**

Claims 16-19 recite additional patentable combinations. Each of these claims is believed patentable in its own right, in addition to being dependent upon claim 15.

For example, claim 18 recites that the imagery characteristics comprise an index which is used to identify at least one of scale, rotation, altitude, attitude, resolution, time, imaging device type, and skew. Mauney is not understood to use the position information discussed in Col. 4, lines 25-38 as an index to obtain altitude or attitude information.

The remaining dependent claims also recite patentable combinations. Favorable consideration is requested.

Claim 20 in view of Moskowitz and Mauney

Claim 20 recites a data structure stored on a computer readable medium. The data structure includes an image captured from an aerial platform, the image including embedded data in the form of a digital watermark. The digital watermark includes imagery characteristics, wherein said imagery characteristics relate to a spatial domain representation of the aerial image.

For example, the imagery characteristics may include a resolution indicator of the aerial image. Or the imagery characteristics may include the type of image capture device which captured the aerial image. Of course there are many other types of imagery characteristics with the scope of claim 20 as well.

The proposed combination of Moskowitz and Mauney is not understood to teach or suggest such an inventive combination. For example, Moskowitz is not understood to teach embedding images captured from aerial platforms. Moskowitz merely mentions the term “satellite” in context of only a transmission channel (see Col. 6, lines 16-17), not as an image capture platform. And Mauney teaches away from using his annotation techniques with aerial images (see Mauney at Col. 2, lines 18-22). The Office’s cited passages (i.e., Mauney at Fig. 1; Abstract, Col. 1, lines 8-16; and Col. 3, lines 50-58) are not understood to deal with aerial images, but rather position data (i.e., longitude,

latitude, altitude) derived by a GPS receiver, perhaps later to be displayed to chart a travel path.

Moreover, Moskowitz is not understood to teach that the digital watermark includes imagery characteristics, wherein the imagery characteristics relate to a spatial domain representation of the aerial image. The laundry list of cited passages (i.e., Moskowitz at Abstract, lines 1-8; Col. 4, lines 18-47; Col. 5, line 59 – Col. 6, line 8; and Col. 7, line 29 – Col. 8, line 2) are not helpful in this regard. Moskowitz at Col. 4, for example, discusses that watermark information may include title, copyright holder, pricing, distribution path, and licensed owner of a particular copy, but not imagery characteristics that relate to a spatial domain representation of the aerial image.

Claim 20 should be allowed.

Claim 23 in view of Moskowitz and Mauney

The Office correctly states that Moskowitz is deficient in teaching obtaining geovector information corresponding to a location depicted in the photograph (see Office Action at page 11, lines 1-3).

Mauney is cited as “obtaining geovector information” (see Office Action at page 11, lines 3-4). But the Office fails to establish that Mauney teaches that the geovector information corresponds to a location depicted in a photograph, as recited in claim 23.

The only Mauney passage which mentions the term “photograph” (i.e., Mauney at Col. 2, lines 7-22) teaches away from using the Mauney techniques with photographs (i.e., see lines 18-22). Thus, there is no motivation of success for combining the references as proposed by the office. The proposed combination of Moskowitz and Mauney is improper.

Nevertheless, the proposed combination of Moskowitz and Mauney fails to teach or suggest that the geovector information corresponds to a location depicted in the photograph, in combination with the other features of claim 23.

Other shortcomings of the art need not be belabored at this time.

Claim 23 should be allowed.

**Claim 37 in view of Moskowitz and Mauney**

While Mauney may suggest location information including longitude, latitude and height, it is not understood to teach or suggest an article of manufacture comprising steganographically embedded data therein, the data including location information comprising information corresponding to *longitude, latitude, time, azimuth, cardinal direction, and height*.

Claim 37 should be allowed.

**Claim 41 in view of Moskowitz and Mauney**

Claim 41 has been amended to loosely include the features of now cancelled claim 40.

Moskowitz is cited as teaching embedding first geovector (now, broadly phrased as “geolocation”) information only in a first region (see Office Action at page 16, lines 1-4 of paragraph 44). Applicants respectfully disagree. (Remember that claim 41 recites that the first geolocation information corresponds to the first region.).

One example falling within the scope of claim 41 is a map depicting an airport and a duck pond near the airport. The first region may correspond to the duck pond, and the first geolocation information (e.g., geocoordinates) would then also correspond to the

duck pond. Embedding the first geolocation information in the map would then occur only in the area representing the duck pond, and not in a region representing the airport. (Of course, there are many other implementations and examples that will fall within the scope of claim 41. Reciting this example should in no way limit the scope of claim 41.).

Moskowitz at the cited passages is not understood to embed watermark information only in a first region depicted in a map (or content signal), where the watermark information corresponds to the first region. For example, Moskowitz gives examples of watermark information as being a title, copyright holder, pricing, distribution path and licensed owner of a particular copy (see Col. 5, lines 59-66), but fails to connect this watermark information to a first region depicted in a content signal.

Applicants also question the propriety of combining Mauney and Moskowitz in the proposed manner. Other shortcomings of the art are not belabored herein.

Respectfully, claim 41 should be allowed.

Claim 45 in view of Moskowitz and Mauney

Claim 45 has been amended to loosely include the features of now cancelled claim 40.

Applicants disagree with the Office's position that Mauney teaches redundantly watermarking the first geovector information in the map (remember that the first geovector information corresponds to at least a first region to be depicted by the map). Instead, Mauney would collect GPS data from a vehicle with a mounted GPS sensor. The collected data is feed into a database. This information is collected, and perhaps later used to create a GIS layer, but the collected data is not understood to be redundantly watermarked throughout a map.

Respectfully, claim 45 should be allowed.

Claims 1, 3 and 4 in view of Moskowitz and Mauney

The proposed combination of references is deficient in many regards.

Moskowitz is not understood to teach watermarking image data acquired by an aerial platform. The cited passage at Col. 6, lines 9-45 is understood to deal with transmitting content through a satellite, not acquiring image data by an aerial platform.

The Office suggests that Mauney correlates image data based on imagery characteristics. But remember that claim 1 requires that the imagery characteristics be digitally watermarked within the image data. Mauney does not suggest or teach how to use information watermarked within image data.

Respectfully, claim 1 should be allowed.

Please also consider claim 3. The image data is segmented into a plurality of patches, and a watermark is embedded in each of the plurality of patches, the watermark including imagery characteristics for its respective patch.

Applicants disagree with the Office's characterization of Mauney in this regard (see the Office Action at page 3, lines 5-9 of paragraph 5). In particular, Mauney is not understood to teach a watermark including imagery characteristics for its respective patch. Rather, the cited passages discuss, e.g., displaying position information captured by a GPS receiver.

And, in claim 4, image characteristics for at least one of the plurality of patches is adjusted so that at least two adjacently positioned patches have similar imagery characteristics. One example from the specification would adjust the resolution, scale and/or skew of a first image patch to match that of a second image patch, see, e.g., FIGS. 2a and 2b and the related specification discussion. (Of course there are many other

examples and implementations that will fall within the scope of claim 4, and the above specification examples should be not read to limit the scope of claim 4.).

Mauney does not adjust image characteristics so adjacent image patches have similar imagery characteristics.

Respectfully, claims 1, 3 and 4 should be allowed.

Claim 7 in view of Moskowitz and Mauney

Claim 7 recites a method of managing aerial imagery. The method includes steps of: watermarking patches of the aerial imagery, wherein each patch includes at least one watermark, the at least one watermark including an index; and storing in a database a plurality of data records corresponding to a range of watermark indexes, wherein the data records comprise imagery characteristics.

Mauney is cited as teaching the feature of storing in a database a plurality of data records corresponding to a range of watermark indexes, wherein the data records comprise imagery characteristics. Applicants disagree. In particular, applicants note that Mauney is silent as to storing data records that *correspond to a range of watermark indexes*. The cited Mauney passages simply do not teach this feature, in combination with the other features of claim 7.

Thus, claim 7 should be allowed.

Claims 46-50 in view of Moskowitz and Mauney

New claim 46 recites a method of steganographically marking imagery captured from an aerial platform. The method includes steps of: obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the

aerial platform; and embedding the first geolocation information in the imagery captured from the aerial platform in the form of a digital watermark.

The proposed combination of Moskowitz and Mauney is not understood to teach or suggest such an inventive combination of features. For example, neither Mauney nor Moskowitz teach or suggest obtaining first geolocation information corresponding to a first region depicted in the imagery captured from the aerial platform, and embedding the first geolocation information in the imagery.

In claim 47 we recite that the first geolocation information is only embedded in the first region. These features are not disclosed in the proposed combination of Moskowitz and Mauney.

In claim 50 we recite that the first geolocation information is redundantly embedded in the imagery captured from the aerial platform. Again, this combination of features is not disclosed by the combination of Moskowitz and Mauney.

Respectfully, claims 46-50 should be allowed.

#### Remaining Dependent Claims

The remaining dependent claims are believed patentable in their own right, in addition to being patentable from dependent upon allowable base claims.

Favorable consideration is requested.

#### Information Disclosure Statement

Applicants are submitting herewith an Information Disclosure Statement and Form-1449. Consideration of the documents listed on the Form-1449 is respectfully requested.

Conclusion

The application is believed to be in condition for allowance. An early notice of allowance is respectfully requested. (Applicants need not belabor the other shortcomings of the art at this time.).

Nevertheless, the Examiner is invited to telephone the undersigned at 503-495-4575 if any issue remains.

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Respectfully submitted,



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